

IMAGES IN INTERVENTION

Excimer Laser Angioplasty-Facilitated Fracturing of Napkin-Ring Peri-Stent Calcium in a Chronically Underexpanded Stent

Documentation by Optical Coherence Tomography



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A 79-year-old man underwent stent implantation into a severely calcified proximal left anterior descending coronary lesion (Figure 1) in December 2012 followed by restenting in March 2014 to treat in-stent restenosis (Figure 2), both without full balloon expansion. Optical coherence tomography (OCT) documented thick, persistent napkin-ring calcium. He was admitted for recurrent unstable angina in April 2014. After initial treatment with excimer laser coronary angioplasty (ELCA; 1.4 mm, Spectranetics Corporation, Colorado Springs, Colorado) using saline injection, fluence of 60 mJ/mm², and frequency of 80 Hz, a balloon was fully expanded. OCT showed fracturing of peri-stent

calcium and good stent expansion (Figure 3). This approach has been reported in the ELLEMENT (Excimer Laser LESion Modification to Expand Non-dilatable sTents) registry (1); in the current case, we used OCT to document the mechanism behind this approach.

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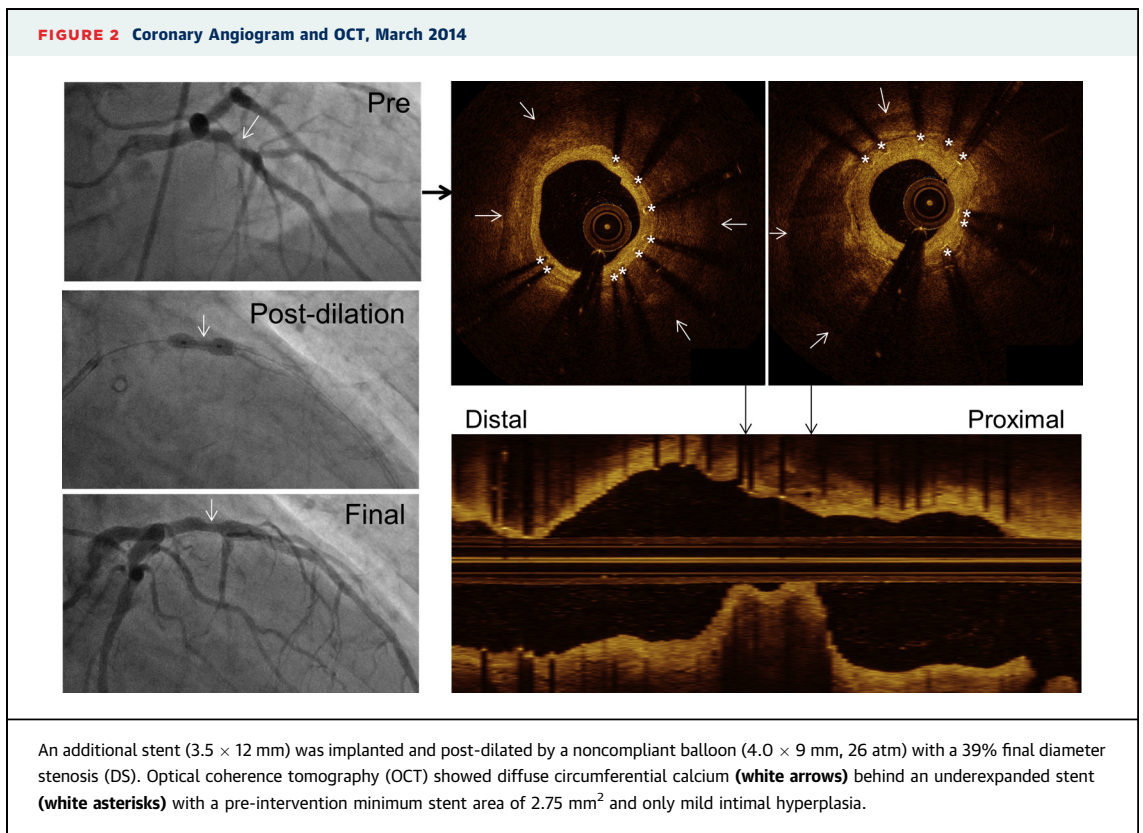
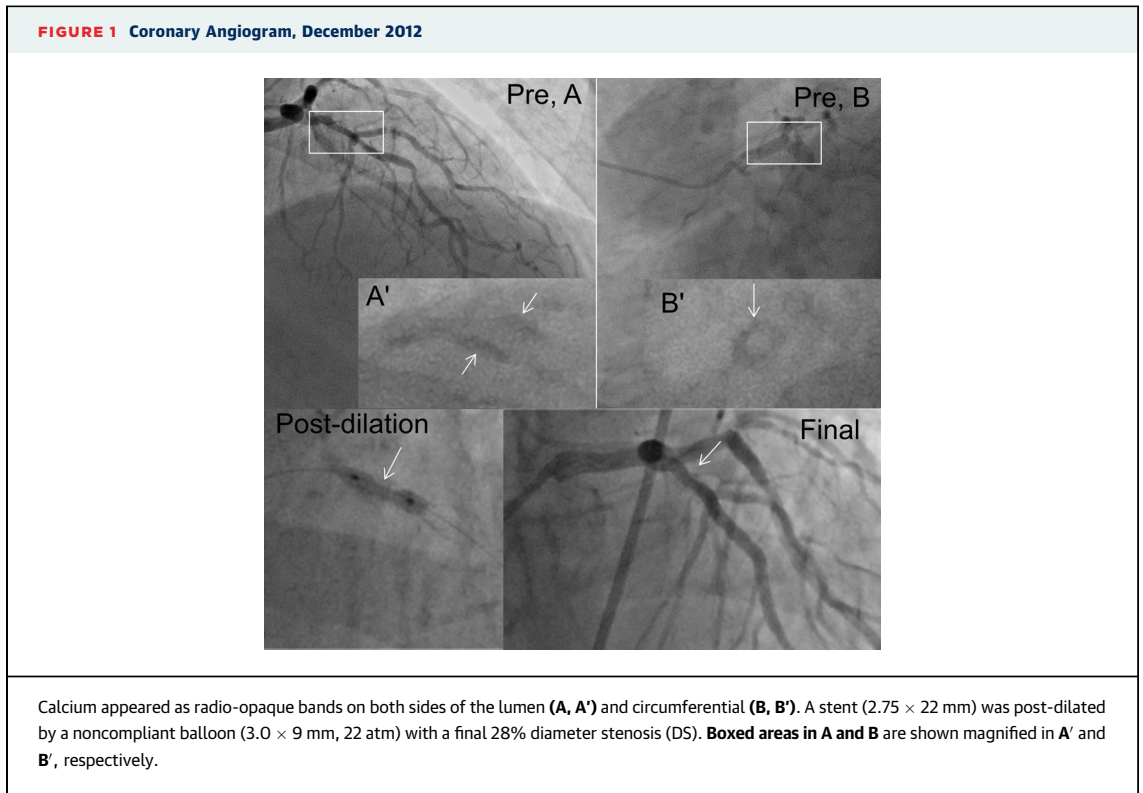
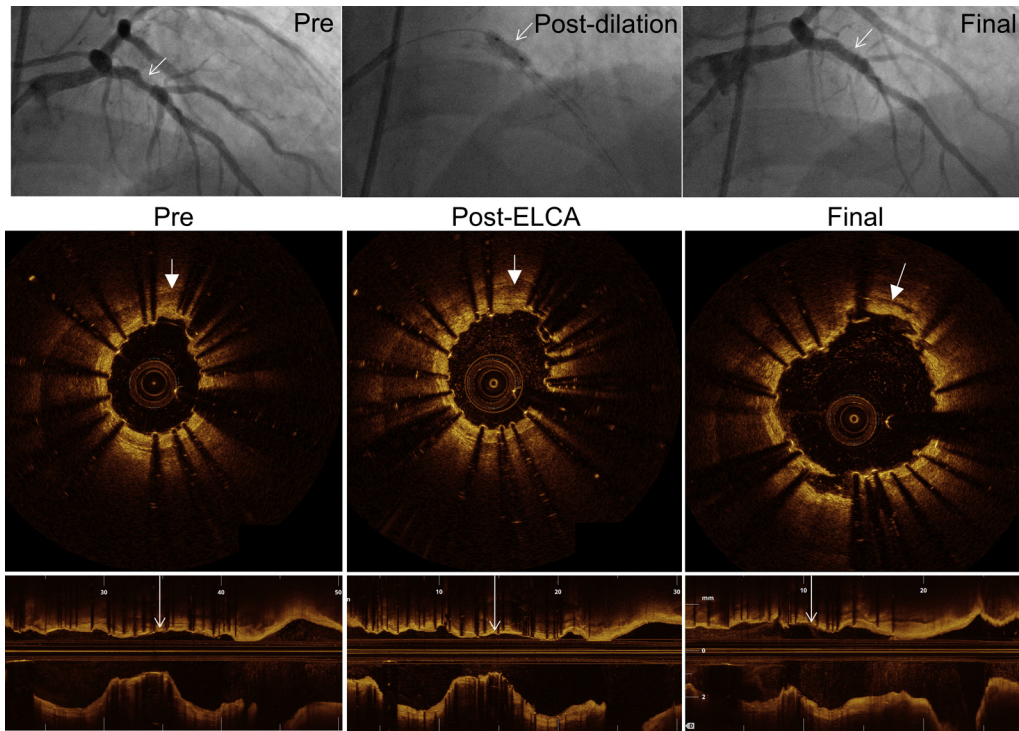


FIGURE 3 Coronary Angiogram and OCT, April 2014



Matched OCT slices and longitudinal reconstruction showed a pre-excimer laser coronary angioplasty (ELCA) MSA of 2.26 mm², no change post-ELCA (**white arrow**), but fracturing of the thinnest part of the calcium after balloon post-dilation with a noncompliant balloon (3.5 × 9 mm, 22 atm) resulting in good stent expansion (MSA = 6.34 mm²) and a final DS of 10%. Abbreviations as in [Figure 2](#).

REFERENCE

1. Latib A, Takagi K, Chizzola G, et al. Excimer laser lesion modification to expand non-dilatable stents: the ELLEMENT registry. *Cardiovasc Revasc Med* 2014;15:8-12.

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